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**REFRIGERATING SYSTEMS AND HEAT  
PUMPS - VALVES - REQUIREMENTS,  
TESTING AND MARKING**

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EUROPEAN STANDARD

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English version

## Refrigerating systems and heat pumps - Valves - Requirements, testing and marking

Systèmes de réfrigération et pompes à chaleur -  
Robinetterie - Exigences, essais et marquage

Kälteanlagen und Wärmepumpen - Ventile -  
Anforderungen, Prüfung und Kennzeichnung

This European Standard was approved by CEN on 21 April 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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## Foreword

This document (EN 12284:2003) has been prepared by Technical Committee CEN/TC 182, "Refrigerating systems, safety and environmental requirements", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Annexes A, B, C, D are normative and annexes E and F are informative

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European standard specifies safety requirements, safety factors, test methods, test pressures used and marking of refrigerating valves and other components with similar bodies, hereinafter called valves, for use in refrigerating systems.

It describes the procedure to be followed when designing (by calculation or by an experimental design method) valve parts subjected to pressure as well as the criteria to be used in the selection of materials.

The standard describes methods by which reduced impact values at low temperatures may be taken into account in a safe manner.

This standard applies to the design of bodies and bonnets for pressure relief devices, including bursting disc devices, with respect to pressure containment but it does not apply to any other aspects of the design or application of pressure relief devices.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 378-1, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Basic requirements, definitions, classification and selection criteria.*

EN 378-2:2000, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 2: Design, construction, testing, marking and documentation.*

EN 378-4, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 4: Operation, maintenance, repair and recovery.*

EN 764-4, *Pressure equipment — Part 4: Establishment of technical delivery conditions for metallic materials.*

EN 764-5, *Pressure equipment — Part 5: Compliance and Inspection Documentation of Materials.*

EN 1563, *Founding — Spheroidal graphite cast irons.*

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EN 10045-1, *Metallic materials — Charpy impact test — Part 1: Test method.*

EN 10087, *Free-cutting steels — Technical delivery conditions for semi-finished products, hot-rolled bars and rods.*

EN 10204, *Metallic products — Types of inspection documents.*

prEN 12516-2, *Industrial valves — Shell design strength — Part 2: Calculation methods for steel valve shells.*

EN 13445-2:2002, *Unfired pressure vessels — Part 2: Materials.*

prEN 14276-1:2001, *Pressure equipment for refrigerating systems and heat pumps — Part 1: Vessels — General requirements.*

EN 60534-2-1:1998, *Industrial-process control valves — Part 2-1: Flow capacity — Sizing equations for fluid flow under installed conditions (IEC 60534-2-1:1998).*

EN ISO 6708:1995, *Pipework components — Definition and selection of DN (nominal size (ISO 6708:1995).*

ISO 7268:1983, *Pipe components — Definition of nominal pressure.*

CR-ISO 15608:2000, *Welding — Guidelines for a metallic material grouping system (ISO/TR 15608:2000).*

### 3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

#### 3.1

##### **Valve**

device with shut-off, non-return, regulating- or control functions for refrigerant flow or a filter device in similar dimensions. It can be operated by hand, by an actuator or by the system pressure of the plant

NOTE The expression 'control valve' denotes an automatic valve with a feedback system and the expression 'regulating valve' denotes a hand-operated valve which may have a shaped cone to assist the regulating function.

#### 3.2

##### **Operating range**

the combination of temperature and pressure conditions at which the valve can safely be operated

#### 3.3

##### **Nominal size (DN)**

an alpha-numeric designation of size for components of a pipework system [See EN ISO 6708:1995]

#### 3.4

##### **Nominal pressure (PN)**

a value of a pressure in the range of the maximum allowable pressure for planning a plant or a component (see ISO 7268:1983)

#### 3.5

##### **Corrosion**

all forms of material wastage (e. g. oxidation, erosion, wear and abrasion)

#### 3.6

##### **Maximum design temperature**

highest temperature that can occur during operation or standstill of the refrigerating system or during testing under test conditions

#### 3.7

##### **Minimum design temperature**

lowest temperature that can occur during operation or standstill of the refrigerating system or during testing under test conditions

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